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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/696,109	10/25/2000	Juergen Bauer	510553.92128	4150

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EXAMINER

DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 06/21/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/696,109

Applicant(s)
Bauer et al.

Examiner
Tracy Dove

Art Unit
1745



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct 25, 2000
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 6) ☐ Other:

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DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-50 are rejected under the judicially created doctrine of double patenting over claims 1-33 of U. S. Patent No. 6,117,594 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

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The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: both the application and the patent claim a grid supporting structure having an active material pasted thereto. The grid comprises a lead-based alloy consisting essentially of lead, tin, calcium and silver.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See also MPEP § 804.

Claims 1-50 are provisionally rejected under the judicially created doctrine of double patenting over claims 30-71 of copending Application No. 09/627,522. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: both the instant application and the copending application claim a grid supporting structure having an active material pasted thereto. The grid comprises a lead-based alloy consisting essentially of lead, tin, calcium and silver.

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Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See also MPEP § 804.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 26-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 26 and 39 recite “a grid supporting structure” having “a positive plate and a negative plate disposed within a container” and “a separator”. However, the grid supporting structure cannot comprise the battery container, separator or both the positive and negative plates.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-3, 5-6, 8-16, 18, 20-28, 30-31, 33-41, 43 and 45-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Rao, US 5,298,350.

Claim 1 of Rao '350 recites:

"An automotive SLI battery comprising a battery container having a plurality of cells and an electrolyte contained in the cells, each cell having a plurality of positive and negative electrodes disposed therein comprising a grid supporting structure having a layer of active material pasted thereto, said grid supporting structures for the positive electrodes being a cast structure of a lead-based alloy consisting essentially of lead, from about 0.025 to 0.06% calcium, from about 0.3 to 0.7% tin and from about 0.015 to 0.045% silver, the percentages of calcium, tin and silver being based upon the weight of the alloy prior to casting."

Rao '350 teaches aluminum in an amount of from about 0.008 to about 0.012% may be added to the lead based alloy. See abstract.

Thus the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 8-13, 26-29 and 33-38 are rejected under 35 U.S.C. 102(e) as being anticipated by, and alternatively under 35 U.S.C. 103(a) as being unpatentable over, Rao et al., US 5,874,186.

Rao '186 discloses lead acid batteries having grids made from calcium-tin-silver lead-based alloys in which the alloy composition is carefully selected based upon the grid manufacturing technique of choice and the battery service application. For directly cast strip positive grids, it has been found that alloys of the following composition, based upon the total weight of the grid, are suitable: about 0.030 to 0.050% Ca, from about 0.65-1.25% Sn, from about 0.018-0.030% silver, and the remainder lead (see abstract). Aluminum can be optionally included in an amount from about 0.004-0.01% (col. 9, lin 54-57). Alternatively for gravity casting of the grid, the alloy composition of the grid is : 0.035-0.055% Ca, about 0.95-1.45 Sn, about 0.018-0.030 Ag, and the remainder Pb, all of the percentages being based upon the total weight of the grid. Rao teaches may alternative compositions for the lead-based alloy grid depending on the technique which is used to manufacture the grid. See col. 9, line 45-col. 10, line 8. The use of the grid in sealed and maintenance free batteries is taught. When the battery grids are made by continuous strip casing the lead based alloy is: Ca in the range 0.030-0.050%, Sn in the range 0.95-1.25% and silver in the range 0.017-0.030% (see abstract).

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Thus the claims are anticipated.

The claims are alternatively unpatentable under 35 U.S.C. 103(a) because while Rao '186 does not have a specific teaching within the claimed range, unduly high silver levels may cause brittleness in the cast strip of the grid structure (see col. 16, lines 35-37). Rao further teaches that to the extent possible, the silver content should be minimized to reduce any effect on the oxygen overvoltage at the positive electrode of the lead acid cell (see col. 18, lines 15-19). Furthermore, Rao teaches the combination of the silver and tin ranges should be coordinated to reduce the susceptibility of the directly cast strip to hot-cracks and hot-tear type defects (col. 16, lines 32-35). Thus, one of skill would be motivated to modify the silver and tin ranges to reduce the susceptibility of the directly cast strip to hot-cracks. One of skill would be motivated to minimize the silver contained in the lead alloy to reduce any effect on the oxygen overvoltage at the positive electrode and to minimize brittleness in the cast strip.

Note MPEP 2131.03 states:

A 35 U.S.C. 102 /103 combination rejection is permitted if it is unclear if the reference teaches the range with "sufficient specificity." The examiner must, in this case, provide reasons for as well as a motivational statement regarding obviousness. Ex parte Lee 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993) (expanded Board).

Note the instant claims and the Rao patent use language such as "about" to describe and claim the ranges of calcium, tin and silver in the lead-based alloy. Claim language such as "about" is interpreted broadly when applying prior art.

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Claims 1-6, 8-18, 20-31, 33-43 and 45-50 are rejected under 35 U.S.C. 102(b) as being anticipated by, and alternatively under 35 U.S.C. 103(a) as being unpatentable over, Rao et al., US 5,691,087, as evidenced by Rao et al., US 5,874,186.

Rao '087 teaches a sealed lead-acid cell or battery having positive plates made from an alloy of lead, from about 0.025 to about 0.06% calcium, from about 0.3 to about 0.9% tin and from about 0.015 to about 0.045% silver. See abstract. Rao discloses manufacturing the grids by gravity casting and adding aluminum to the lead alloy in an amount of from about 0.008 to about 0.0120%, however up to 0.03% of aluminum may be used. See col. 8, lines 13-29. Figure 7 shows a lead-acid cell having a container 92 containing a plurality of positive and negative plates 94,96. The plates are separated by absorbent separators 98. Figure 6 shows the positive plate has a grid supporting structure 80 containing an active material. See col. 18, line 66- col. 19, line 30. In general, the tin content employed in the lead-based alloy will be in the range of 12-18 times that of the calcium content (col. 10, lines 20-22). Figure 1 shows a maintenance-free battery. Claim 1 recites a sealed cell. Rao teaches the disclosed lead-acid battery is used in an automobile (col. 9).

Rao teaches the ratio of tin to calcium may be 20:1 or greater. The calcium content of the lead alloy may range from 0.025-0.06%, while the tin content of the alloy may range from 0.3-0.9% (abstract). Thus, if the calcium content is 0.025% the tin content would be 0.5-0.9% of the lead alloy to provide a tin to calcium ratio not less than 20:1. If the tin content is 0.9% of the lead alloy, the calcium content may be 0.025-0.045% to provide a tin to calcium ratio of not less than 20:1.

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Thus the claims are anticipated.

The claims are alternatively unpatentable under 35 U.S.C. 103(a) because while Rao '087 does not have a specific teaching within the claimed range of the instant claims, unduly high silver levels may cause brittleness in the cast strip of the grid structure (evidenced by Rao '186, col. 16, lines 35-37). Rao '186 further teaches that to the extent possible, the silver content should be minimized to reduce any effect on the oxygen overvoltage at the positive electrode of the lead acid cell (see col. 18, lines 15-19). Furthermore, Rao '186 teaches the combination of the silver and tin ranges should be coordinated to reduce the susceptibility of the directly cast strip to hot-cracks and hot-tear type defects (col. 16, lines 32-35). Thus, one of skill would be motivated to modify the silver and tin ranges of Rao '087 to reduce the susceptibility of the directly cast strip to hot-cracks. One of skill would be motivated to minimize the silver contained in the lead alloy of Rao '087 to reduce any effect on the oxygen overvoltage at the positive electrode and to minimize brittleness in the cast strip. This is evidenced by Rao '186.

Note MPEP 2131.03 states:

A 35 U.S.C. 102/103 combination rejection is permitted if it is unclear if the reference teaches the range with "sufficient specificity." The examiner must, in this case, provide reasons for anticipation as well as a motivational statement regarding obviousness. Ex parte Lee 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993) (expanded Board).

Note the instant claims and the Rao patent use language such as "about" to describe and claim the ranges of calcium, tin and silver in the lead-based alloy. Claim language such as "about" is interpreted broadly when applying prior art.

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Allowable Subject Matter

Claims 7, 19, 32 and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


The following is a statement of reasons for the indication of allowable subject matter: the claims are directed to a grid supporting structure comprising an alloy consisting essentially of lead, calcium, tin and silver. The silver content is in the range of from 0.005-0.012% based upon the total weight of the alloy.

The prior art (Rao patents cited above) does not teach a grid supporting structure comprising an alloy consisting essentially of lead, calcium, tin and silver, wherein the silver content is in the range of from 0.005-0.012% based upon the total weight of the alloy.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached Monday-Thursday (9:00 AM-7:30 PM). My supervisor is Pat Ryan, who can be reached at (703) 308-2383. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax numbers are 703-872-9310 (after non-final) and 703-872-9311 (after final).

June 17, 2002


CAROL CHANEY
PRIMARY EXAMINER